

# **HUMANS IN SPACE: SUMMARIZING THE MEDICO-BIOLOGICAL RESULTS OF THE SPACE SHUTTLE PROGRAM.**

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As we celebrate the 50<sup>th</sup> anniversary of Gagarin's flight that opened the era of Humans in Space we also commemorate the 30<sup>th</sup> anniversary of the Space Shuttle Program (SSP) which was triumphantly completed by the flight of STS-135 on July 21, 2011.

These were great milestones in the history of Human Space Exploration. Many important questions regarding the ability of humans to adapt and function in space were answered for the past 50 years and many lessons have been learned. Significant contribution to answering these questions was made by the SSP. To ensure the availability of the Shuttle Program experiences to the international space community NASA has made a decision to summarize the medico-biological results of the SSP in a fundamental edition that is scheduled to be completed by the end of 2011 – beginning 2012. The goal of this edition is to define the normal responses of the major physiological systems to short-duration space flights and provide a comprehensive source of information for planning, ensuring successful operational activities and for management of potential medical problems that might arise during future long-term space missions. The book includes the following sections: 1. History of Shuttle Biomedical Research and Operations; 2. Medical Operations Overview—Systems, Monitoring, and Care; 3. Biomedical Research Overview; 4. System-specific Adaptations/Responses, Issues, and Countermeasures; 5. Multisystem Issues and Countermeasures. In addition, selected operational documents will be presented in the appendices. The chapters are written by well-recognized experts in appropriate fields, peer reviewed, and edited by physicians and scientists with extensive expertise in space medical operations and space-related biomedical research.

As Space Exploration continues the major question whether humans are capable of adapting to long term presence and adequate functioning in space habitats remains to be answered. We expect that the comprehensive review of the medico-biological results of the SSP along with the data collected during the missions on the space stations (Mir and ISS) provides a good starting point in seeking the answer to this question.

